

I CLAIM:

1. A method for modeling one or more predetermined characteristics of a semiconductor device comprising the steps:

- a) fabricating a semiconductor device;
- b) measuring one or more predetermined physical characteristics of said semiconductor device;
- c) testing the semiconductor device; to establish a physically representative equivalent model of said one or more characteristics of said semiconductor device;
- d) varying one or more of said predetermined physical characteristics and fabricating a subsequent semiconductor device with said varied dimensions; and
- e) testing of the sample to establish a correct said physically representative model.

2. The method as recited in claim 1, further including the step of measuring the varied dimensions after said subsequent semiconductor is fabricated.

3. The method as recited in claim 1, wherein a scanning electron microscope (SEM) is used to measure said predetermined dimensions in step (b).

4. The method as recited in claim 1, wherein said testing in step (c) includes taking S-parameter measurements of said semiconductor device.

5. The method as recited in claim 1, wherein said one or more predetermined characteristics include device scaling; bias dependence; temperature dependence; layout dependence and process dependence.

6. The method as recited in claim 1, wherein said one or more predetermined physical characteristics include the physical dimensions of the source access region of said semiconductor device.

7. The method as recited in claim 1, wherein said varied dimensions are measured by way of a SEM.

8. The method as recited in claim 1, wherein said corrected physically representative model is corrected based upon S-parameter measurements.

9. A process for making a semiconductor device comprising the steps of:

- a) fabricating a semiconductor device;
- b) measuring one or more predetermined physical characteristics defining measured characteristics of said semiconductor device;
- c) testing said semiconductor device to establish a physically representative model;
- d) fabricating a subsequent semiconductor device in which said one or more measured characteristics are varied; defining varied characteristics.
- e) measuring said varied characteristics; and
- f) testing said semiconductor device to establish a revised physically representative model of said semiconductor device.

10. The process as recited in Claim 9, further including step (g) repeating steps (d) through (f) one or more times.

11. The process as recited in claim 9, wherein said physically representative model in steps (c) and (b) is based on predetermined S-parameter measurements.

12. The process as recited in claim 9, wherein steps (b) and (e) include measurement by way of a scanning electron microscope.